Abstract

The present invention provides a process for selectively hydrogenating C_2-C_{10} greater unsaturated hydrocarbons (acetylenes and diolefins) at the upstream side of a front depropanizer or front deethanizer in an olefin production plant. After passing through a mixed phase hydrogenation reactor to selectively hydrogenate, the olefin plant process stream passes to a front depropanizer or front deethanizer. The process according to the present invention is able to selectively hydrogenate C_2-C_{10} greater unsaturated hydrocarbons (including acetylene), to reduce the number of equipments, the amount of equipment fouling and the energy consumption.